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PROGRAM EXECUTIVE OFFICER
TACTICAL AIRCRAFT PROGRAMS
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IN REPLY REFER TO

8800

Ser PEO(T)OPS-1/084
20 Nov 03

From: Program Executive Officer, Tactical Aircraft Programs


Subj: STRIKE PLATFORM ADVANCED TECHNOLOGY REVIEW BOARD RESULTS

Encl: (1) Strike Platform ATRB (04-1) Technology Project Ratings
(2) Strike Platform ATRB (04-1) Voting meeting minutes

1. The Naval Aviation Systems TEAM has completed their evaluation of the technology projects presented at the seventh Strike Platform Advanced Technology Review Board (SPATRB) 04-1 held at Patuxent River, Maryland on 7 October and 21 October 03. Representatives from five aircraft platform/strike Program Offices (PMA-234, PMA-241, PMA-257, PMA-265, PMA-272) and from the Chief of Naval Operations (N780C/D) evaluated twenty technology initiatives for their applicability and transition potential. Enclosure (1) provides the ratings assigned during that process. Specific comments from the meetings relative to each technology project are provided in enclosure (2).

2. We commend the sponsoring commands and industry partners for their participation in the process and for the quality of the strike technology projects presented. We encourage continued funding and technology transition planning for those initiatives listing Program Manager "Support" and "Endorsement" from this and previous SPATRBs.

3. The interchange from this SPATRB meeting was very productive and the results provided are to assist in further technology focus and transition planning. If you have any questions regarding the process or the results, please contact Mr. David Bailey (AIR-4.0X), our SPATRB Facilitator, who may be reached at (301) 342-0219.


J. B. GODWIN III
Rear Admiral, U.S. Navy

Copy to:

PEO(T) (CDR B. Bell, G. Evans)

NAVAIRSYSCOM (AIR-00/09, 1.0, 4.0/4.0A, 4.9 (J. Fischer), 4.0X (D. Bailey, A. Gehris),
PMA-209 (R. Muir), AIR-1.0 (P. O'Dell, G. Cecala), AIR-3.0 (D. Sinback, D. Barr, D. Rizzolo),
AIR-6.0 (R. Wimmer), PMA-231 (D. Cole)

OPNAV (N78, N780, N911)

ONR (OO, OOB, 01, 01A, 03, 04, NTT0, CTTO, 00NA (NAVSTO-R. McGahren, SPASTO-P.
Andrews, SEASTO-M. Miller)

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Distribution:

NAVAIRSYSCOM (PEO(T), PEO(W), PEO(A), 3.0, 3.6, 4.1, 4.2, 4.3, 4.3T, 4.4, 4.4T, 4.5, 4.5T, 4.6, 4.6T, 4.7, 4.7T, 4.8, 4.8T, 4.9, 4.9T, 4.10, 4.10A, 4.10T, 4.11, 4.11T, PMA-233, PMA-234, PMA-241, PMA-257, PMA-263, PMA-265, PMA-272)

JSF (Major T. Johnston, Dr. J. Alper)

N780 (CDR Rich, CDR Dahlberg, LtCol Butters, V. Frunza)

ONR 351 (S. Kern, J. Kinzer, G. Graff, L. Ash),

ONR 35 (M. Deitchman, Ms. P. Connor, D. Masters)

ONR (CAPT S. Hancock)

SPAWARSYSCOM (PD-13 (J. McCain), PMW-187 (B. Tanju))

NAVSEASYS COM (SEA-05R)

DARPA (Dr. D. Whelan, Col. Jose Negron, CAPT Chris Earl)

NASA Langley (Jeff Yetter)

OSD JTCG (Aircraft Survivability - P. Weinberg)

NRL

SPATR VII	Technology Title	PMA- 234	PMA- 241	PMA- 257	PMA- 265	PMA- 272	N780
VII-1	1. Cost Effective Laser Shock to Reduce FOD Sensitivity in Engines	P	P	I	I	P	P
VII-2	2. SECAD (Survivable Engine Control Algorithms Development)	P	P	P	I	P	P
VII-3	3. UAV Surveillance & Reconnaissance ATR/ATT Prototype Demonstration	P	P	I	*E	P	I
VII-4	4. Wide Bandgap Device Thermal Management (G.E. GLOBAL RESEARCH PROPRIETARY)	I	P	P	I	I	P
VII-5	5. Speech Recognition for Productivity Enhancement	P	P	P	P	P	P
VII-6	6. In-Flight Engine Bearing Defect and Wear Monitor	I	P	P	*I	P	P
VII-7	7. Opportunistic Maintenance Dynamic Scheduler	P	P	I	I	P	P
VII-8	8. In-flight Turbine Engine Blade/Disk Crack Detection	I	P	P	*I	P	P
VII-9	9. High-Density, Low Noise DC-DC Converters for DC Power Generation Systems (G.E. GLOBAL RESEARCH PROPRIETARY)	I	P	I	I	I	I
VII-10	10. Gallium Nitride Based High Power Solid State Amplifiers For Decoy Applications (BAE SYSTEMS PROPRIETARY)	I	P	P	I	E	P
VII-11	11. Advanced Cooling Technologies (GE PROPRIETARY)	I	P	P	I	P	P
VII-12	12. Wide Bandgap Microwave Power Devices (GE PROPRIETARY)	I	P	P	I	P	P
VII-13	13. New Airborne Computer (CMC ELECTRONICS PROPRIETARY)	P	P	P	I	P	P
VII-14	14. Digital Moving Map (SMITHS PROPRIETARY)	P	P	P	C	P	P
VII-15	15. Standard Airborne Image Processor (SMITHS PROPRIETARY)	I	P	I	*E	P	I
VII-16	16. Digital Projection System for Head-Up Displays (HUDs) (CMC ELECTRONICS PROPRIETARY)	P	P	P	P	P	P
VII-17	17. Multi-purpose Memory Unit & Flight Data Recorder (HONEYWELL PROPRIETARY)	P	P	P	*E	P	P
VII-18	18. Real Time Image Processing (HONEYWELL PROPRIETARY)	I	P	P	*E	P	P
VII-19	19. 2D Decoy 3D Target Discrimination (PROPRIETARY)	P	P	I	*E	*E	I
VII-20	20. Prognostics and Diagnostics for Aircraft Engines (HONEYWELL PROPRIETARY)	P	P	*E	*I	P	P

Note: The Joint Strike Fighter Technology Transition Office will forward those government sponsored projects that may apply to the Joint Strike Fighter for review to their JSF IPT's. These projects will then be evaluated through JSF's own Science and Technology Advisory Board (JSTAB) process. Industry sponsored projects will be forwarded to the prime contractors for review.

*** FUNCTIONAL VOTE ONLY:** The specific technology is not voted interest or endorse but the general technology concept is being voted as interest or endorse.

SUPPORT: The technology has a high probability of transition to PMA's programs, and resources will be budgeted/planned to support transition.

ENDORSE: The technology is of high interest and will be placed on the PMA roadmap and will be followed as it develops. Transition resources will be considered but not budgeted at this time. (PMA-257, 265, 263 and JSF "endorse" definitions state "....may be placed on the PMA roadmap....") A subsidiary category of FUNCTIONAL ENDORSEMENT is used to endorse a general technology concept, but not that specific technology solution. An endorse vote by N78 is considered a functional endorsement.

INTEREST: The technology has high potential but is not well enough defined, mature or focused to warrant endorsement at this time. The PMA will monitor the progress and consider future endorsement as it matures. This category also includes technologies of general interest and importance to Naval Aviation products but not specific enough to this PMA's product line to warrant endorsement.

PASS: The technology does not apply or is not well enough defined.

CONCERN: The PMA has a concern or conflict with the technology as presented. These concerns will be forwarded to the technology community.

Contains No Proprietary Information

**STRIKE PLATFORM ATRB
VOTING MEETING MINUTES
21 October 2003**

Opening Remarks

**Welcome from Cdr (CAPT select) Barbara Bell, PEO(T) Operations Officer and
Chairman, SPATRB**

Cdr Bell opened the voting meeting by asking the members to provide feedback on the ATRB process to ensure that it meets their needs. At this cycle of the ATRB there seemed to be less attendance by the PMAs and R.O.'s than at previous ATRBs. It is important that the technologies being submitted to the boards are those that meet your technology needs. Cdr Kochman commented that this board's submissions tended to be more avionics oriented rather than propulsion or airframe focused and therefore will take a closer look at broadening and refining their technology needs for the next cycle. Gary Evans emphasized the importance of updating your technology needs so that the science and technology community can best meet them. The opportunity to do this is prior to each cycle of the SPATRB. Dave Bailey added that the Naval Science and Technology Office (NAVSTO) is constantly approached by organizations such as ONR and DARPA along with industry and academia and asked about current technology needs of the program offices (PMAs).

Cdr Kochman asked about updates on previously submitted technologies. Steve Woodford answered that only those that were voted support or endorse are specifically asked to provide updates. However the ATRB can request an update on any previously submitted technology at your request. It was mentioned that few technologies receive support votes (i.e. funding or other resources) and a concern was expressed that industry may reduce their interest in submitting to the ATRB. However, the positive affect of a support or endorse vote at an ATRB has been significant, particularly for technologies submitted by ONR in enabling them to continue to receive their government funding. Steve Woodford mentioned that over 98% of all ONR projects endorsed or supported at previous ATRBs since 1997 are still being funded. Other submitters from Industry and academia also tend to retain their funding from IRAD and other sources if they receive endorse votes. Dave Bailey stated that we bring in organizations to brief at the ATRBs such as the Commercial Technology Transition office out of ONR that do provide a source of funding for technology efforts. Likewise, an "endorse" or "support" vote for an IR&D funded project allows industry to know what to continue funding for those efforts. Gary Evans mentioned that there are discretionary funds obtained by NAVAIR for technology development and transition, as evidenced by the 30 million dollars coming from the CTTO office at ONR, of which 14 million was recently allocated to PEO (T).

**Remarks from Dave Bailey, NAVSTO Manager, NAVAIR ATRB Team, and NAVSTO
SPATRB Facilitator**

Dave began by welcoming CDR Steve Kochman, PMA-234's advanced development lead, to his first voting meeting, as well as Lt Mike Doxey, representing PMA-241. He reviewed the agenda and purpose of today's meeting, emphasizing the importance of providing feedback to the technologists on their projects. He reviewed the ratings categories and stated the implications of a support or endorse vote may result in applying resources towards transition (support) or an intention to put the technology on their roadmap (endorse) and followed as it develops. Dave will brief the new N78 on the SPATRB and intends to better engage with the requirements officers at N78 to reinvigorate that connectivity and support. We need to document and disseminate our successes better, since we actually have better statistical success than the SBIR process. Dave reminded the voting members that previous votes could be modified either between ATRB cycles or at the voting meeting upon receipt of an update on a technology.

Steve Woodford, NAVAIR ATRB Support Team

These voting minutes will be sent out to the voting members for review. Once reviewed for comment and accuracy CDR Bell and Dave Bailey will approve for distribution to the entire ATRB distribution list through an endorsement letter signed by PEO(T). The ATRB support team will facilitate follow-up coordination on supported and endorsed projects between the PMAs and the technologists.

Voting Members:

PMA-234 Cdr Steve Kochman

PMA-241 Lt Mike Doxey

PMA-257 Unable to attend. Votes and comments submitted in advance by Maj Mike Roberts, Advanced Development lead.

PMA-265 Mr. Rick Chambers

PMA-272 Mr. Rich LaMarca

N78 – Unable to attend. N78 will provide their votes and comments as soon as possible.

JSF – Unable to attend. JSF is currently conducting technology surveys of government lab facilities of US and partner countries in response to its technology priorities document. The JSF Science and Technology Board (JSTAB) may review applicable topics from this SPATRB during this ongoing cycle.

TECHNOLOGY SUBMISSIONS

1. Cost Effective Laser Shock to Reduce FOD Sensitivity in Engines - use laser shock processing technology to demonstrate cost effective FOD tolerant component improvements
Todd Rockstroh / GE Aircraft Engines

PMA-257 – Interest. At this stage in our post production phase, non-recurring costs could be prohibitive. This would have to generate a very strong business case to warrant a higher rating.

PMA-265 – Interest. We would like MANTECH to take a look at this.

2. SECAD (Survivable Engine Control Algorithms Development) - insert algorithms into FADECs to detect engine damage and mitigate the effects before the damage becomes catastrophic to the engine and/or aircraft. Charles Frankenger / NAWC-WD

PMA-257 – Pass. Impression is that this is a ‘stove pipe’ solution.

PMA-265 – Interest. We recall seeing this a few years ago. Our propulsion IPT recommended interest only. No change.

Dave Bailey – This may be of interest to UAVs. I recommend we send this to CAPT Sorensen at PMA-263/UCAS.

3. UAV Surveillance & Reconnaissance ATR/ATT Prototype Demonstration - adapt CST's terminal homing CAP to a UAV surveillance/reconnaissance scenario for a UAV ATR prototype demonstration
Dr. Stanley Yuen / CompuSensor Technology Corporation

PMA-257 – Interest. Technology seems to need more development. We would like to see implementation into a targeting POD and development of an IR capability.

PMA-265 – Functional Endorse. We endorse the capability but not necessarily this specific technology. We are always interested in ATR/ATT algorithm developments. One concern we have is that in a network centric environment we would like to see common algorithms developed across multiple platforms and weapons; they should cross over to other platforms and weapons. We would rather not see a UAV- or specific platform/weapon-specific solution.

4. Wide Bandgap Device Thermal Management
G.E. Global Research Proprietary
Ray Fillion / GE Global Research

5. Speech Recognition for Productivity Enhancement - produce, test and implement a speech recognition based data capture system adapted for a Navy maintenance program
Michael Clark / Kelley's Logistics Support System

No comments.

6. In-Flight Engine Bearing Defect and Wear Monitor - an automated in-flight monitoring system that can detect both slow bearing wear and sudden defect development, monitor the growth of these anomalies and forecast component failure
Walter Hernandez/ Creative Engineering Concepts Inc.

PMA-234 – Interest. This is early technology and may not apply to the type of information we need. Our engineers are talking with this technologist and we encourage him to pursue and

mature this technology. If this technology matures our vote may change.

PMA-265 – Functional Interest. We are interested in this capability but not necessarily this specific technology. This is due to its low technology readiness level. There are lots of prognostic tools being developed and we are not sure in what direction we will proceed in this area.

7. Opportunistic Maintenance Dynamic Scheduler - an automated tool that Naval aviation units would use to optimize their scheduled maintenance downtime tailored to a particular PMA/ weapon system
Michael Clark / Kelley's Logistics Support System

PMA-265 – Interest. We currently have our AME program ongoing but want to keep an eye on how this develops. There is interest at the wing level in these types of technologies.

8. In-flight Turbine Engine Blade/Disk Crack Detection - uses torsional vibration signals to identify hidden modes that become visible due to cracks in turbine blades or disks
Walter Hernandez/ Creative Engineering Concepts Inc.

PMA-265 - Functional Interest. We are interested in this capability but not necessarily this specific technology. We are looking at a multitude of technologies in this area.

9. High-Density, Low Noise DC-DC Converters for DC Power Generation Systems
G.E. Global Proprietary
Ray Fillion / GE Global Research

10. Gallium Nitride Based High Power Solid State Amplifiers For Decoy Applications
BAE SYSTEMS PROPRIETARY
John A. Windyka / BAE Systems

11. Advanced Cooling Technologies
GE PROPRIETARY
Todd Wetzel / G.E. Global Research

12. Wide Bandgap Microwave Power Devices
GE PROPRIETARY
Ed Kaminsky / G.E. Global Research

13. New Airborne Computer
CMC ELECTRONICS PROPRIETARY
Don Glass / CMC Electronics

14. Digital Moving Map

SMITHS PROPRIETARY

John Riedesel / Smiths Aerospace Electronic Systems

15. Standard Airborne Image Processor

SMITHS PROPRIETARY

John Riedesel / Smiths Aerospace Electronic Systems

16. Digital Projection System for Head-Up Displays (HUDs)

CMC ELECTRONICS PROPRIETARY

Todd Ashcraft / CMC Electronics

17. Multi-purpose Memory Unit & Flight Data Recorder

HONEYWELL PROPRIETARY

Brian DeBruine / Honeywell Defense & Space Electronic Systems

18. Real Time Image Processing

HONEYWELL PROPRIETARY

Brian DeBruine / Honeywell Defense & Space Electronic Systems

19. 2D Decoy 3D Target Discrimination

PROPRIETARY

Dr. Jerry Mersten / NAWC-AD

20. Prognostics and Diagnostics for Aircraft Engines

HONEYWELL PROPRIETARY

Howard Wiebold / Honeywell Engines, Systems and Services

Action Items Summary:

A. Submission #2 SECAD - Pass to CAPT Sorensen in PMA-263/UCAS for his review. [see Dave Bailey comment]

B. Submission #4 Wide Bandgap Device Thermal Management- Pass to Darrell Cole in PMA-231 for review.

C. Submission #9 High-Density, Low Noise DC-DC Converters for DC Power Generation Systems – Pass to Darrell Cole in PMA-231 for review

D. Steve Woodford will send CDR Kochman the email from Deborah Van Vechten regarding endorsing the HYPRES Superconductive Digital Channelizer technology that was presented to PMA-234 at an ONR electronics conference in the spring of 2002 (Done, 10/21/03). Cdr Kochman will determine if an official PMA-234 endorsement is warranted and alert the ATRB team either way.